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10/782,249	02/18/2004	Ross Stenfort	ADAPP266	4992

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MARTINE PENILLA & GENCARELLA, LLP
710 LAKEWAY DRIVE
SUITE 200
SUNNYVALE, CA 94085

EXAMINER

PLANTE, JONATHAN R

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2182

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/782,249	Applicant(s) STENFORT, ROSS	
	Examiner Jonathan R. Plante	Art Unit 2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The instant application having Application Number: 10/782,249 filed on 18 February 2004 has a total of 21 claims pending in the application; there are 3 independent claims and 18 dependent claims, all of which are ready for examination by the examiner.

Oath/Declaration

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in **37 C.F.R. 1.63**.

Specification

3. The disclosure is objected to because of the following informalities:
 - a. (Page 8, Line 13): Please replace "**Serial AT Attachment**" with "Serial Advanced Technology Attachment" for acronym declaration and specification completeness.
 - b. (Page 10, Line 14): Please replace "**the first state machine (SM1)**" with "the second state machine (SM2)".
 - c. (Page 13, Line 15): Please replace "**first state machine (SM2)**" with "first state machine (SM1)".

Appropriate correction is required.

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claims 2-21 are objected to because of the following informalities:
 - a. (Claims 2-7, Line 1): Please replace "**A circuit**" with "The circuit" to resolve potential lack of antecedent basis issues.
 - b. (Claim 7, Line 2): Please replace "**Serial AT Attachment**" with "Serial Advanced Technology Attachment" for acronym declaration and claim completeness.
 - c. (Claims 8, Line 5): Please replace "**other that**" with "other than" for grammatical reasons.
 - d. (Claims 9-14, Line 1): Please replace "**A method**" with "The method" to resolve potential lack of antecedent basis issues.
 - e. (Claim 10, Line 2): Please replace "**Serial AT Attachment**" with "Serial Advanced Technology Attachment" for acronym declaration and claim completeness.
 - f. (Claim 11, Line 3): Please replace "**a task other**" with "the task other" to resolve potential lack of antecedent basis issues.
 - g. (Claims 15, Line 8): Please replace "**other that**" with "other than" for grammatical reasons.

- h. (Claims 16-21, Line 1): Please replace "**A computer**" with "The computer" to resolve potential lack of antecedent basis issues.
- i. (Claim 17, Line 5): Please replace "**Serial AT Attachment**" with "Serial Advanced Technology Attachment" for acronym declaration and claim completeness.
- j. (Claim 18, Line 4): Please replace "**a task other**" with "the task other" to resolve potential lack of antecedent basis issues.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 4 recites the limitation of "the first state machine is configured to continue the device communication to an extent possible when deviation from the device

communication”, however the written disclosure does not disclose the first state machine continuing the deviated device communication when deviated.

8. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(Claims 1): The terminology “**enable a continuation**” is ambiguous and results in the claim being indefinite. The metes and bounds are unclear.

The term “enable” does not require that the element be performed only that the element “could be” or “potentially can be” done.

(Claims 1 and 15): The terminology “**device communication**” is ambiguous and results in the claim being indefinite. The metes and bounds are unclear.

(Claims 1, 3, 4, 8, 15): The terminology “**enable deviation**” and “**deviating**” are ambiguous and results in the claim being indefinite. The metes and bounds are unclear.

The term “enable” does not require that the element be performed only that the element “could be” or “potentially can be” done.

(Claims 4, 13, 20): The terminology “**to an extent possible**” is ambiguous and results in the claim being indefinite. The metes and bounds are unclear. The Examiner will interpret Claims 4, 13, and 20 in respect to Claim 5, 14, and 21.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

(Claims 15-21), are rejected under 35 U.S.C. 101 because the claims are not limited to tangible embodiments. In view of Applicant's disclosure, specification (Paragraph 0032) the medium is not limited to readable storage media embodiments, instead includes “distributed over a network” (Paragraph 0032) which leads to electromagnetic signals, fields, and waves that are non-statutory subject matter.

As such, the claim is not limited to statutory subject matter and is therefore non-statutory. To vacate this rejection the claims need to be amended to include only the physical computer storage media and not a communication/transmission media.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-6, 8-9, 11-16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Diepstraten et al. (US 6,243,736 B1 June 5, 2001).

(Claims 1, 8, and 15): Diepstraten et al. discloses, “a first state machine [**“state transition diagram” (Column 6, Line 3) and “Foreground” (Figure 1, 10)**] defined by circuitry configured to perform device communication, [**“controlling I/O devices, data communication, and network protocols, and other processes defined in terms of communicating state machines” (Column 2, Line 65)**] the first state machine circuitry being further configured to enable deviation from the device communication, [**“switching from one foreground task to another” (Column 6, Line 22)**] the first state machine circuitry being further configured to obtain a status of the device communication to enable a continuation of the device communication; [**memory contain contexts having status indicators associated tasks (Column 4, Lines 1-8) and additionally from Figure 1 the current state of the task in the state machine indicates status as running, preempted, and waiting (Figure 1, Index 18, 20, 22)**] and

a second state machine [**“Background” (Figure 1, 12) and “background task controller” (Column 4, Lines 31-45)**] defined by circuitry configured to monitor the device communication to be performed by the first state machine, the second state machine circuitry being further configured to provide the status of the device communication to the first state machine to enable the continuation of the device communication. [**“contexts corresponding to background tasks to be executed in the processor, the context having status indicators” (Column 6, Line 8)) and additionally from Figure 1 the current state of the task in the state machine indicates status as running, queued, and waiting (Figure 1, Index 24, 26, 28)**].

Examiner Note: The Examiner has interpreted Figure 1 as consisting of two state machines, with the first state machine being titled as Foreground and the second state machine being titled Background. The Foreground and Background state machines transfer tasks between them based on the task priority and tasks currently running. As depicted in Figure 1 the Highest Priority (36) is always running in the foreground (Rf) 18. If a higher priority task becomes ready the currently running task can be transferred to the Preempted (Pf) state 20 or transferred to the Background via the execution of the CLRFG function (Column 7, Lines 1-10). When the highest priority tasks have completed the tasks running in the Background can be transferred to the Foreground via the SETFG function (Column 7, Line 27-

34) from running background (Rb) state or queued (Qb) state (Column 7, 54-58). Tasks can also be transferred form the waiting background (Wb) state to the preempted (Pf) state (Column 7, Line 49-54).

(Claims 2, 11, and 18): In further view of Claims 1, 8, and 15 Diepstraten et al. discloses, "wherein the first state machine includes circuitry configured to receive a request to perform a task other than the device communication." **["a context controller for managing multitasking in a processor" (Column 3-4, Lines 67-2)].**

Examiner Note: The Examiner has interpreted a processor as being equivalent to a CPU which performs both I/O operations, arithmetic operations, and other instructions for the operation of the computer (Figure 4B, 114). The request to perform another task is represented by signal "Highest Priority" (Figure 1, 36) or the "INIT or non-masked Event or Signal" (Figure 1, 40).

(Claims 3, 12, and 19): In further view of Claims 2, 11, and 18 Diepstraten et al. discloses, "wherein the first state machine includes circuitry configured to recognize the task other than the device communication as having a higher priority than the device communication and activate the first state machine circuitry configured to enable deviation from the device communication." **[Figure**

1 depicts in the Foreground state machine "Highest Priority" 36 being transitioned to the running foreground (Rf) state and task that was running being transitioned to the preempted (Pf) state or to the queued (Qb) state in the background.].

(Claims 4, 13, and 20): In further view of Claims 1, 8, and 15 Diepstraten et al. discloses, "wherein the first state machine circuitry is configured to continue the device communication to an extent possible when deviation from the device communication is enabled." **[In figure 1 the task running in the running foreground (Rf) state can be transitioned to the waiting foreground (Wf) state or via the CLRFG function call (Column 7, Lines 1-10) to the queued (Qb) state in the background where it can transition to the waiting background (Wb) state. The foreground and background waiting states then waits for activation of one of the context's for that task to be enabled (Column 8, Lines 12-18) at which point the task can be transferred to the foreground preempted state (Pf) (Column 7, Line 50-55) for processing.].**

(Claims 5, 14, and 21): In further view of Claims 4, 13, and 20 Diepstraten et al. discloses, "wherein the extent possible corresponds to a state in the device communication at which the first state machine is required to provide a response to continue the device communication." **[The foreground waiting state (Wf) waits for activation of the "INIT or non-masked Event or SIGNAL" (Figure 1,**

40) at which point the task can be transitioned to the foreground running state (Rf) for processing or the background waiting state (Wb) can be transitioned to the queued background state (Qb) by the “non-masked Event or SIGNAL” (Figure 1, 48) which can then transition to the running foreground state (Rf).].

(Claims 6, 9, and 16): In further view of Claims 1, 8, and 15 Diepstraten et al. discloses, “wherein the second state machine circuitry is configured to perform the device communication in accordance with a protocol to be followed by the first state machine.” **[The multiple tasks are performed by the multitasking processor meaning that the tasks being performed conform to the instruction set/protocol required by the processor. This means that the tasks running in the foreground and the tasks running in the background conform to the same protocol for the multitasking processor. The Examiner additionally refers to Applicants “Description of the Related Art” contained under “Background of the Invention” where Applicant has disclosed that “standard communication protocols have been developed” (Paragraph 0002) and “The standard communication protocols provide rigid frameworks and processes for conducting data transfer” (Paragraph 0002) which the Examiner has interpreted as meaning both the first state machine (foreground) and second state machine (background) conform to**

the standard protocol to perform I/O operations, data communication and network protocols (Column 2, Lines 65-67).].

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 7, 10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diepstraten et al. (US 6,243,736 B1 June 5, 2001), and in further view of Applicant's Admitted Prior Art (APA).

(Claims 7, 10, and 17) In further view of Claims 6, 9, and 16 Diepstraten et al. teaches the application to of interfacing with and controlling I/O devices (interpreted as including hard drives, USB devices, graphic cards, and etc), data communication, and network protocols (Column 2, Lines 65-67). However Diepstraten et al. fails to disclose the specific application of the SATA protocol for communicating with the I/O devices.

SATA as disclosed by Applicant's admitted prior art is "a standard protocol used for communication to and from an internal storage device" (Paragraph 0002).

As a result it would have been obvious to one skilled in the art to use the SATA standard protocol for communication between I/O devices using the motivation that the thinner serial cables facilitate increased efficient air flow to increase heat dissipation inside the computer housing. Also the SATA standard protocol would also have been an obvious protocol to select using the motivation that serial ATA provides faster data communication than parallel connections (e.g. parallel ATA, IDE).

The motivation for heat dissipation and speed is further supported by SATA as defined at www.techweb.com.

Conclusion

14. In addition to reference used under 35 U.S.C. 102, additional prior art references that disclose relevant subject matter on the merits can be found in:

- a. Grieff et al. (US 6,961,813 November 1, 2005)
 - i. Priority scheme
 - ii. Command tracker state machine
 - iii. SATA Specification
 - iv. Highest Priority, preemption
 - v. Command completion tracking
- b. Cutler et al. (US 5,752,031 May 12, 1998)

- i. State Machine Figure 4
- ii. I/O disk drives
- iii. Task switching / multitasking
- iv. Preemptive multitasking
- v. Highest Priority
- vi. Task continuation
- vii. Task Status

c. Formal Description of a Real-Time Operating System using RTPA

- i. Multiple Tasks
- ii. Finite State Machine
- iii. Priority
- iv. Figure 2
- v. Task suspended, waiting on CPU

The Examiner requests that Applicant additionally review the above references.

15. The examiner requests, in response to this Office action, support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line number(s) in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

Art Unit: 2182

When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).


16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan R. Plante whose telephone number is (571) 272-9780. The examiner can normally be reached on Monday -- Thursday 10:00 AM to 4:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Art Unit: 2182

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 10, 2007
JRP



Jonathan R. Plante
Art Unit 2182



KIM HUYNH
SUPERVISORY PATENT EXAMINER
7/16/07